

Biological Analysis Report

NE-DIST-2017-09-01-01

Florida Department of Environmental Protection
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Overflow Analyses Performed By:
Advanced Environmental Laboratories - Gainesville
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Event Description: **SUW 5-6/28/17**
Request ID: **RQ-2017-08-21-11**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 23-JAN-2018 13:07



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Chlorophyll/Grain Size/BOD, Molecular and Overflow.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Alligator Creek above Starke WWTP on US 301 **Collection Date/Time: 08/31/2017 09:10**

Field ID: G1NE0557 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927135	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	U	ug/L	P331779	
		Phaeophytin-a	0.80	U	ug/L	P331779	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P331779	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Alligator Creek above Starke WWTP on US 301 **Collection Date/Time: 08/31/2017 09:10**

Field ID: G1NE0557 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927139	EPA 1603	Escherichia coli-Membrane Filter	132	B	cfu/100 mL		

Sample Location: Alligator Creek above Starke WWTP on US 301 **Collection Date/Time: 08/31/2017 09:10**

Field ID: G1NE0557 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927143	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P331126	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Montechoa Creek @ CR 340 (NE 156th Ave.) **Collection Date/Time: 08/31/2017 09:45**

Field ID: G1NE0591 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927136	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P331779	
		Phaeophytin-a	1.1	I	ug/L	P331779	
		Chlorophyll-a, Uncorrected	1.2		ug/L	P331779	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Montechoa Creek @ CR 340 (NE 156th Ave.) **Collection Date/Time: 08/31/2017 09:45**

Field ID: G1NE0591 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927140	EPA 1603	Escherichia coli-Membrane Filter	1000	B	cfu/100 mL		

Sample Location: Montechoa Creek @ CR 340 (NE 156th Ave.) **Collection Date/Time: 08/31/2017 09:45**

Field ID: G1NE0591 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927144	SOP-PCR-1.0	HF183-qPCR**	3.5E+03		GEU/100 mL	P331126	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: Turkey Creek @ NW 59th

Collection Date/Time: 08/31/2017 10:55

Field ID: G1NE0018 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927137	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P331779	
		Phaeophytin-a	0.40	U	ug/L	P331779	
		Chlorophyll-a, Uncorrected	0.65	I	ug/L	P331779	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Turkey Creek @ NW 59th

Collection Date/Time: 08/31/2017 10:55

Field ID: G1NE0018 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927141	EPA 1603	Escherichia coli-Membrane Filter	280		cfu/100 mL		

Sample Location: Turkey Creek @ NW 59th

Collection Date/Time: 08/31/2017 10:55

Field ID: G1NE0018 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927145	SOP-PCR-1.0	HF183-qPCR**	3.5E+03		GEU/100 mL	P331126	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Hague Branch Trib @ US 441 80 M W 77th Terrace

Collection Date/Time: 08/31/2017 10:30

Field ID: G1NE0631 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927138	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P331779	
		Phaeophytin-a	0.40	U	ug/L	P331779	
		Chlorophyll-a, Uncorrected	0.45	I	ug/L	P331779	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Hague Branch Trib @ US 441 80 M W 77th Terrace

Collection Date/Time: 08/31/2017 10:30

Field ID: G1NE0631 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927142	EPA 1603	Escherichia coli-Membrane Filter	2500		cfu/100 mL		

Sample Location: Hague Branch Trib @ US 441 80 M W 77th Terrace

Collection Date/Time: 08/31/2017 10:30

Field ID: G1NE0631 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927146	SOP-PCR-1.0	HF183-qPCR**	190	U	GEU/100 mL	P331126	
	SOP-PCR-1.2	GULL2-qPCR**	1.1E+04	U	TSC/100 mL	P331126	
	SOP-PCR-1.3	GFD-purified-qPCR**	12	T	TSC/100 mL	P331945	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	U	TSC/100 mL	P331126	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Field ID: G1NE0631 08312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment:							
SOP-PCR-1.0: No amplification of HF183 marker.							
SOP-PCR-1.2: No amplification of GULL2 marker. Precision data unavailable.							
SOP-PCR-1.4: No amplification of BACR marker.							

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P331779

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P331126

Component	Result	Code	Units
HF183-qPCR	280	U	GEU/100 mL

Reference Method: SOP-PCR-1.2
Batch ID: P331126

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P331945

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

Reference Method: SOP-PCR-1.4
Batch ID: P331126

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P331779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	106		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P331126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	144	53.4	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2
Batch ID: P331126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	77.2	69.5	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P331945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	72.4	15.0	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P331126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	74.4	13.7	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P331126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926859	HF183-qPCR	121		P	50 - 175
1926860	HF183-qPCR	142	146	P/P	50 - 175
1927143	HF183-qPCR	78.5		P	50 - 175
1927144	HF183-qPCR	104		P	50 - 175
1927145	HF183-qPCR	141		P	50 - 175
1927146	HF183-qPCR	122		P	50 - 175
1927574	HF183-qPCR	130		P	50 - 175
1927975	HF183-qPCR	147		P	50 - 175
1927976	HF183-qPCR	136		P	50 - 175
1927977	HF183-qPCR	148		P	50 - 175
1927978	HF183-qPCR	132		P	50 - 175
1927979	HF183-qPCR	145		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P331126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927146	GULL2-qPCR	62.1		P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P331945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926085	GFD-purified-qPCR	87.4		P	50 - 175
1927146	GFD-purified-qPCR	67.2		P	50 - 175
1930313	GFD-purified-qPCR	176		F	50 - 175
1932535	GFD-purified-qPCR	88.2	151	P/P	50 - 175
1933162	GFD-purified-qPCR	22.3		F	50 - 175
1933846	GFD-purified-qPCR	57.7		P	50 - 175
1934550	GFD-purified-qPCR	70.6		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
 Batch ID: P331945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935003	GFD-purified-qPCR	56.4		P	50 - 175
1935006	GFD-purified-qPCR	70.1		P	50 - 175

Reference Method: SOP-PCR-1.4
 Batch ID: P331126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927146	BacR-qPCR	81.0		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P331779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927416	Chlorophyll-a, Corrected	5.64	Sample	P	0 - 25
1927416	Chlorophyll-a, Uncorrected	5.19	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P331126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926860	HF183-qPCR	2.72	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
 Batch ID: P331945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932535	GFD-purified-qPCR	52.5	Spike	F	0 - 25

Reference Method: SOP-PCR-1.4
 Batch ID: P331126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932857	BacR-qPCR	10.4	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1927143
 Field Sample ID: G1NE0557 08312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1927143
Field Sample ID: G1NE0557 08312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	147	P	50 - 300

Lab Sample ID: 1927144
Field Sample ID: G1NE0591 08312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	174	P	50 - 300

Lab Sample ID: 1927145
Field Sample ID: G1NE0018 08312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	191	P	50 - 300

Lab Sample ID: 1927146
Field Sample ID: G1NE0631 08312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	208	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	80.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.1	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	106			5.64	
	Chlorophyll-a, Uncorrected				5.19	
SOP-PCR-1.0	HF183-qPCR	53.4 144	141 122 130			2.72
			147			
SOP-PCR-1.2	GULL2-qPCR	69.5 77.2	62.1			
SOP-PCR-1.3	GFD-purified-qPCR	15.0 72.4	176 88.2 151			52.5
			22.3			
SOP-PCR-1.4	BacR-qPCR	13.7 74.4	81.0			10.4

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E82001	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Gainesville Overflow Laboratories for NED	1927139, 1927140, 1927141, 1927142
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1927135, 1927136, 1927137, 1927138
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1927143, 1927144, 1927145, 1927146
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1927146
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1927146
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1927146
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1927143, 1927144, 1927145, 1927146

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	08/31/2017	08/31/2017 15:02		09/01/2017 16:10	AEL - Gainesville	1927139, 1927140, 1927141, 1927142
SM 10200 H (mod.)	09/01/2017	09/01/2017 15:50	Jennifer Mihalic	09/18/2017	Kim M. Spencer	1927135, 1927136, 1927137, 1927138
SOP-PCR-1.0	09/01/2017	09/01/2017 15:00	Sarah Menz	09/07/2017	Puja Jasrotia	1927143, 1927144, 1927145, 1927146
SOP-PCR-1.2	09/01/2017	09/01/2017 15:00	Sarah Menz	10/04/2017	Sarah Menz	1927146
SOP-PCR-1.3	09/01/2017	09/01/2017 15:00	Avril Wood	10/10/2017	Sarah Menz	1927146
SOP-PCR-1.4	09/01/2017	09/01/2017 15:00	Sarah Menz	10/03/2017	Sarah Menz	1927146
SOP-PCR-4.0	09/01/2017	09/01/2017 15:00	Puja Jasrotia	09/28/2017	Puja Jasrotia	1927143, 1927144, 1927145, 1927146